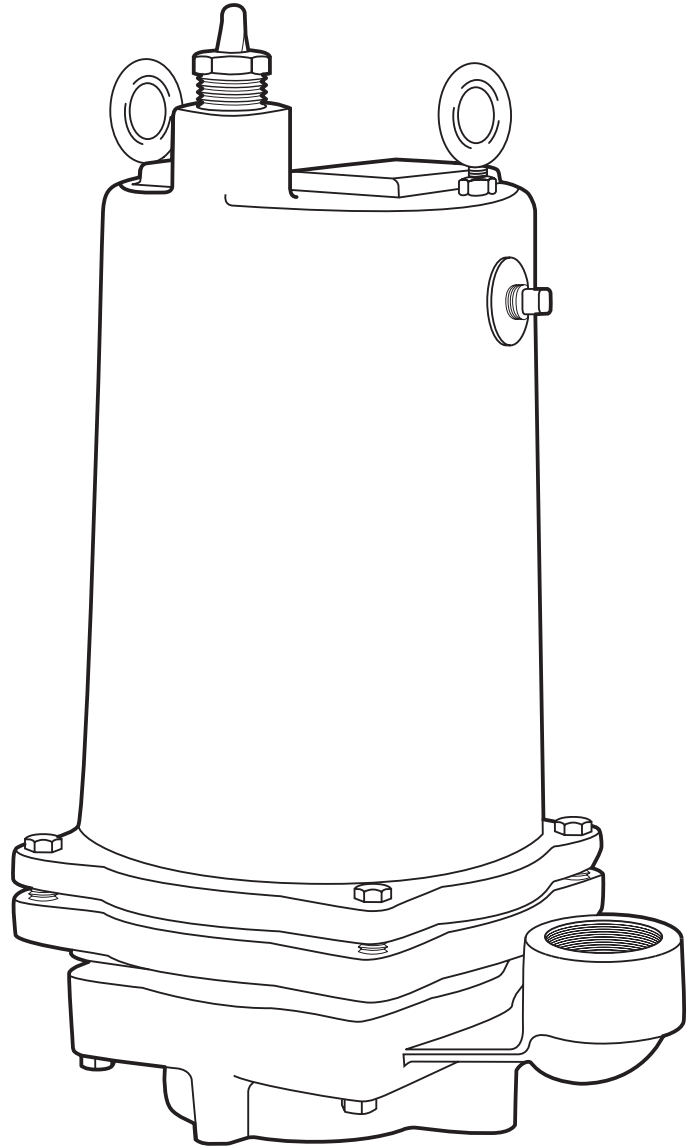




**HYDROMATIC®**



# MODEL HPGR200 SUBMERSIBLE GRINDER PUMP

## INSTALLATION AND SERVICE MANUAL



NOTE! To the installer: Please make sure you provide this manual to the owner of the equipment or to the responsible party who maintains the system.

## General Information

### Attention:

This manual contains important information for the safe use of this product. **DO NOT THROW AWAY OR LOSE THIS MANUAL.** Reasonable care and safe methods should be practiced. Check local codes and requirements before installation.

**WARNING: Before handling these pumps and controls, always disconnect the power first. Do not smoke or use sparkable electrical devices or flames in a septic (gaseous) or possible septic sump.**

## Pump Cautions and Warnings

Do not smoke or use sparkable electrical devices or flame in a septic or possible septic sump.

If entry into the sump is necessary, then provide proper safety precautions per OSHA requirements and do not enter sump until these precautions are strictly adhered to.

**Failure to heed the above cautions could result in injury or death.**

1. **CAUTION** – To reduce risk of electrical shock, pull plug before servicing this pump.
2. **WARNING** – Risk of electrical shock. This pump has not been investigated for use in a swimming pool.
3. **WARNING** – To reduce risk of electrical shock, be certain that it is connected to ground.
4. **WARNING** – Hazardous moving parts. To reduce the risk of injury, disconnect power before servicing pump.
5. **CAUTION** – To reduce the risk of electrical shock, **DO NOT** remove cord or strain relief. **DO NOT** connect conduit to pump. Electrical installations shall be in accordance with the National Electrical Code and all applicable local codes and ordinances. This marking is required on 3 phase models only.
6. **CAUTION** – For use with maximum 140°F water.
7. **CAUTION** – Tank should be vented in accordance with local plumbing codes and should not be installed in locations classified as hazardous, in accordance with the National Electrical Code, ANSI/NFPA 70-1999.
8. **CAUTION** – Never work on pump with power on. Make sure that the ground wire is securely connected and that the unit is properly grounded in accordance with local codes.

### CALIFORNIA PROPOSITION 65 WARNING:

**⚠ WARNING** This product and related accessories contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

## Pump Installation

### Installing Pump in Sump:

Before installing pump in sump, lay it on its side and rotate impeller. The impeller should turn freely. Do not connect the power until after this test.

Clean all trash and sticks from sump and connect pump to piping. A check valve must be installed on each pump.

### Location:

If pumps are installed in an existing basin or concrete sump, the piping can either be connected permanently or rails and brackets can be furnished for mounting to walls of basin. In either case, be sure that a Hydromatic® check valve is used and that the pumps are submerged in a vertical position. The complete factory-built packaged system is recommended.

### Making Electrical Connections:

All wires should be checked for shorts to ground with an ohmmeter or Megger after the connections are made.

## Pump Operation

### Starting the Pump

**WARNING: Severe injury may result from accidental contact with moving cutters. Keep clothing, hands and feet away from cutters any time power is connected to the pump.**

### To start the pump:

Run water into sump until motor is covered.

Open gate valve in discharge line.

Turn pump on. If pump runs and sump liquid does not pump down, stop pump and close discharge gate valve. Lift pump until sealing flange is open to vent off trapped air. Lower pump, open discharge valve and start the pump again.

Level control should be set so that pump turns off when level is about 2 inches above inlet of pump suction and turns on when level is about 2 inches above motor.

If problems occur, check power source. Make sure a separate supply line is available. Verify voltage supply.

Check winding resistance.

Pump should be checked every quarter for corrosion and wear.

## Pump Servicing

### Replacing Grinder Parts:

Close gate valve at pump discharge and turn off circuit breaker.

Remove pump from sump, unscrew screws and remove cutter ring retainer.

Unscrew hex head cap screws and remove volute case.

Radial cutter and axial cutter are now exposed.

If necessary to replace cutters, remove screw, washer and radial cutter from shaft. Tap radial cutter if necessary to loosen. Axial cutter lifts off impeller and is held from rotation by pin. Unscrew impeller from shaft in same manner.

Clean all parts thoroughly before proceeding with assembly. Replace case, cutter ring and cutter ring retainer.

Plug pump into power and operate for a few seconds only to ensure parts are not rubbing.

### Replacing Seal:

Drain the oil from the pump and remove the volute and cutters.

Remove the impeller and seal rotating elements by sliding the spring bellows off the shaft.

Break the old stationary portion of the seal to allow for removal.

Take the stationary portion of the new seal and lube the rubber material with Hydromatic oil. Press the stationary portion of the new seal into the seal/bearing plate.

**CAUTION: Do not reuse old seal parts. Replace all parts with new.**

Lube the rubber material on the carbon seal assembly and press it on the shaft. Place the spring bellows on the shaft as removed.

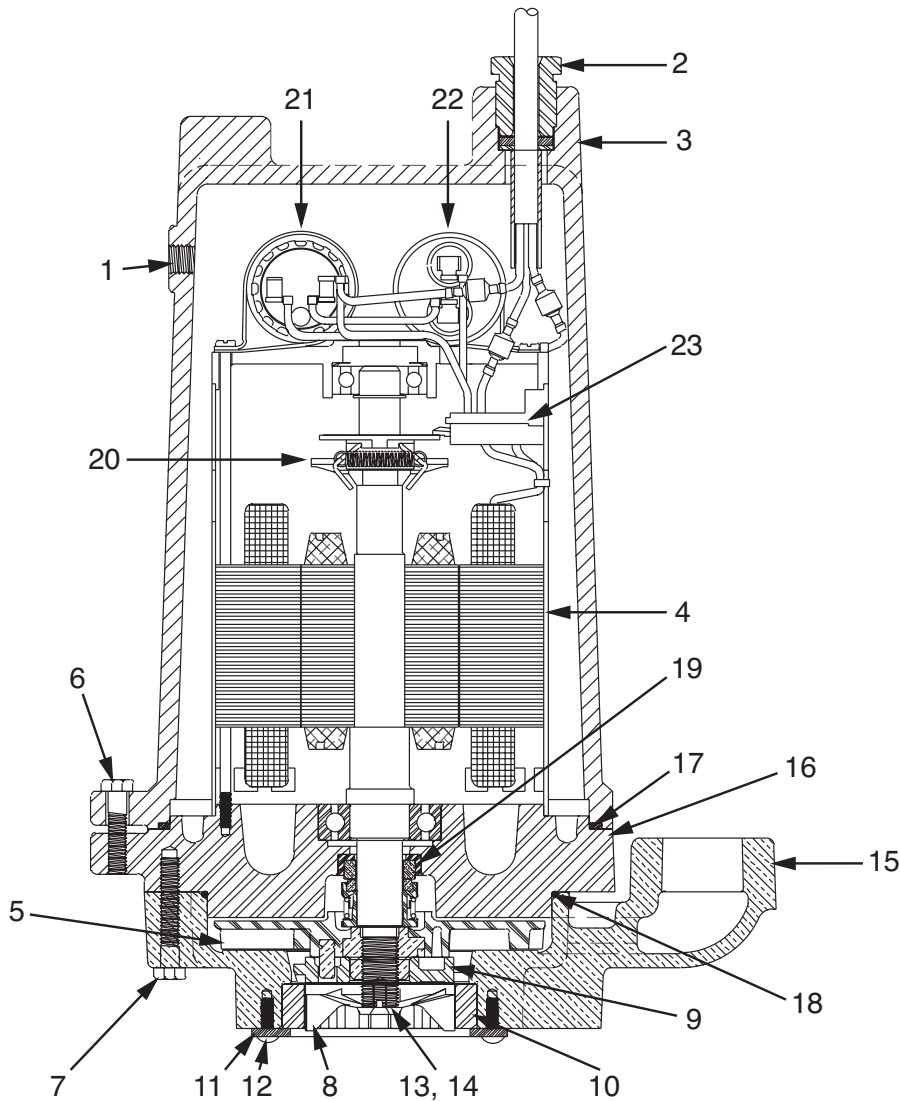
Using a pressure gauge with a fill stem, pressurize the motor housing no more than 7 psig with dried air and check for leaks for several minutes.

**NOTE: It is normal to observe some air bubbles in the seal area initially as the seal seats. If bubbles do not stop within a few seconds, the seal is either not properly installed or is damaged.**

Reassemble the cutter and volute.

Refill motor housing with Hydromatic oil. Fill the motor housing so that the tops of the motor windings have been covered, but leave an air gap to allow for expansion of the oil.

# HPGR200 Parts List



Ref. No.	Part No.	Part Description	Qty.
1	05022A092	Oil Fill Plug	1
2	25338B001	Power Cord	1
3	145890022	Motor Housing	1
4	145700001	Motor (Marathon™)	1
5	070330203	Impeller	1
6	19100A012	Screw	4
7	001010111	Screw	4
8	054050012	Radial Cutter	1
9	055060022	Axial Cutter	1
10	055050002	Stationary Cutter	1
11	077630001	Cutter Retainer	1
12	000190011	Screw	3
13	055700051	Impeller Washer	1
14	148850001	Impeller Screw	1
15	109570002	Volute	1
16	145690002	Bearing Housing	1
17	05014A181	O-ring	1
18	008340231	O-ring	1
19	145730001	Shaft Seal	1
20	152249001	Mechanical Switch (AO Smith™)	1
	26466C003	Mechanical Switch (Marathon)	1
21	12141A018	Start Cap (AO Smith)	1
	12141A000	Start Cap (Marathon)	1
22	23838A010	Run Cap (AO Smith)	1
	145700041	Run Cap (Marathon)	1
23	152249011	Stationary Switch (AO Smith)	1
	26466C004A	Stationary Switch (Marathon)	1
NOT SHOWN	21929A002	Eye Bolt	2
	010320021	Hex Nut	2
	145950201	For Automatic Operation Wide Angle Switch 20'	

## Troubleshooting

Below is a list of troubles and their probable causes:

### No liquid delivered

1. Pump airbound
2. Discharge head too high
3. Pump or piping plugged
4. Speed too low

### Insufficient liquid delivered

1. Discharge head too high
2. Impeller or cutters partially plugged or damaged
3. Incorrect impeller diameter
4. Speed too low

### Insufficient discharge pressure

1. Air or gases in liquid
2. Impeller damaged
3. Incorrect impeller diameter
4. Speed too low

### Pump overloads motor

1. Specific gravity or viscosity of liquid too high
2. Speed too high
3. Head lower than rating, pumping too much liquid
4. Pump clogged
5. Defective bearings
6. Defective impeller

### Pump is noisy

1. Defective bearings
2. No axial clearance between impeller and volute
3. No diametral clearance between radial cutter and cutter ring

## STANDARD LIMITED WARRANTY

Pentair Hydromatic® warrants its products against defects in material and workmanship for a period of 12 months from the date of shipment from Pentair Hydromatic or 18 months from the manufacturing date, whichever occurs first – provided that such products are used in compliance with the requirements of the Pentair Hydromatic catalog and technical manuals for use in pumping raw sewage, municipal wastewater or similar, abrasive-free, noncorrosive liquids.

During the warranty period and subject to the conditions set forth, Pentair Hydromatic, at its discretion, will repair or replace to the original user, the parts that prove defective in materials and workmanship. Pentair Hydromatic reserves the right to change or improve its products or any portions thereof without being obligated to provide such a change or improvement for prior sold and/or shipped units.

Start-up reports and electrical schematics may be required to support warranty claims. Submit at the time of start up through the Pentair Hydromatic website: <http://forms.pentairliterature.com/startupform/startupform.asp?type=h>. Warranty is effective only if Pentair Hydromatic authorized control panels are used. All seal fail and heat sensing devices must be hooked up, functional and monitored or this warranty will be void. Pentair Hydromatic will cover only the lower seal and labor thereof for all dual seal pumps. Under no circumstance will Pentair Hydromatic be responsible for the cost of field labor, travel expenses, rented equipment, removal/reinstallation costs or freight expenses to and from the factory or an authorized Pentair Hydromatic service facility.

This limited warranty will not apply: (a) to defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with the printed instructions provided; (b) to failures resulting from abuse, accident or negligence; (c) to normal maintenance services and parts used in connection with such service; (d) to units that are not installed in accordance with applicable local codes, ordinances and good trade practices; (e) if the unit is moved from its original installation location; (f) if unit is used for purposes other than for what it is designed and manufactured; (g) to any unit that has been repaired or altered by anyone other than Pentair Hydromatic or an authorized Pentair Hydromatic service provider; (h) to any unit that has been repaired using non factory specified/OEM parts.

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